AMENDMENTS TO THE DRAWINGS

Applicant requests permission to revise Figures 2 and 8 as marked in red ink on the copies attached hereto. Formal drawings showing the corrections will be filed following receipt of permission from the Examiner and an indication of allowable subject matter in this case.

Attachment: Annotated Sheet Showing Changes

REMARKS/ARGUMENTS

Claims 1-31 and 33-34 now stand in the present application, claims 1, 7, 10, 12, 16, 29 and 33 having been amended, and claims 32 and 35 having been canceled. Reconsideration and favorable action is respectfully requested in view of the above amendments and the following remarks.

In the Office Action the Examiner states that the Information Disclosure Statement filed on December 17, 2004, fails to comply with 37 CFR 1.98(a)(2). The Examiner's statement in this regard is not understood in that the aforementioned Information Disclosure Statement has been initialed by the Examiner on January 6, 2008 as shown by the attached copy of the initialed Information Disclosure Statement attached to the outstanding Office Action. Moreover, in the filing of the Information Disclosure Statement Applicant noted that the listed documents were to be supplied by WIPO directly to the USPTO and that if copies were not timely received from WIPO, the Examiner was respectfully requested to contact Applicant so that copies could be timely supplied for the Examiner's consideration. From the Examiner's statement it is not clear what, if anything, was not provided by WIPO to the USPTO. Accordingly, clarification of this alleged deficiency is respectfully requested.

The Examiner has rejected claims 1-35 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. As noted above, Applicant has amended the claims in order to correct each of the deficiencies pointed out by the

Examiner. Accordingly, the Examiner's § 112, second paragraph, rejection of the claims is believed to have been overcome.

The Examiner has also rejected claims 1-35 under 35 U.S.C. § 103(a) as being unpatentable over Applicant's admitted prior art (AAPA) in view of Brodsky et al., in view of Burgess and in view of Campbell, Jr. et al., and has rejected claims 14 and 24 over the cited art in view of JP 02001062579A. Applicant respectfully traverses the Examiner's § 103 rejections of the claims.

The Examiner notes that the AAPA describes in the specification the state of the art well known for laser marking. See Office Action at page 3. The Examiner does not identify which or any of the AAPA references described in the specification constitute the prior art that the Examiner is relying upon, let alone identify what portions of those alleged prior art references the Examiner is relying upon as AAPA. In this regard it is noteworthy that the European Patent Office deemed all of the "so-called" Examiner's prior art references (AAPA) as being category A references which are each described as a "document defining the general state of the art which is not considered to be of particular relevance."

In rejecting the present claims the Examiner then goes on to combine three more references, Brodsky et al., Burgess and Campbell, Jr. et al. with the unidentified AAPA prior art. As will be described below, none of the cited references described as background art in the present specification or the Examiner's newly cited references, taken either singly or in any combination with other references, teaches or suggests Applicant's inventions.

More particularly, none of the AAPA documents nor the newly-cited documents disclose a control unit comprising a memory in which an individual marking pattern can be stored, which in a first step is applied on an object and which in a second step is compared to the applied code marking on the object. Therefore, it is respectfully submitted that the subject matter of independent claims 1,16 and 29 are not taught or suggested by any combination of the cited prior art. In addition, independent claim 33 which provides a specific focus depth for the laser beam focusing means is also not taught or suggested by any combination of the cited prior art.

In particular, the inspection of a previously applied code pattern is only discussed in document WO 92/15963, which relates to the coding of recyclable PEL plastic bottles, wherein an inspection means 5 comprising a CCD-camera 6 is employed as a reading means of the applied code marking. However, no functional connection between coding station 3 and inspection means 5 is disclosed in the cited art, in particular no individual marking pattern is stored in a control unit, as required in independent claims 1, 16 and 29.

In contrast, the present invention is particularly addressed to meet the requirements of pharmaceutical industry as stated on p. 1, lines 12 to 17, wherein individual code markings on each receptacle are desired in order to allow individually tracing back of fabricated pharmaceuticals. The application of individual markings on different glass receptacles is described e.g. on p. 7, lines 34 to 36. According to the invention, said comparison with the individual marking pattern stored in the control unit allows the inspection of the previously applied, individual markings on different glass

receptacles.

Moreover, none of the cited documents describe the detection of the position of the glass receptacles or of the transport speed according to independent claims 1,16 and 29. This information is used in Applicant's inventions to correct or track the deflection of the laser light beam as stated on p. 9, lines 12 to 14 of the present specification. Thereby, the reliability of the marking method is enhanced, the number of defective objects decreased and inscription of objects "on the fly" made possible in order to meet the requirements of pharmaceutical industry.

The use of a particular laser wavelength below 380 nm on glass-ceramic or glass material according to independent claims 1,16, 29 and 33 is only known from document US 2001/0009707. This document, however, is not related to the deposition of code marking, but to generating a textured surface on memory disk substrates, wherein the effect is exploited in that UV-lasers are particularly effective for this purpose.

Therefore, it would not have been obvious for one skilled in the art to apply this wavelength in the field of code marking technology on glass receptacles. The present application teaches that this wavelength has the advantage, that the respective locations of the glass surface are subjected to much lower thermal stress compared to commonly applied CO_2 lasers, as stated on p. 6, lines 27 to 38. Thus, the danger of damaging the glass is greatly reduced.

In order to apprehend the novel features of independent claims 1, 16, 29 and 33, which are not disclosed in any prior art document, one skilled in the art would need to combine a large number of documents in order to arrive at some of the features of the

independent claims. Although the Examiner has failed to specifically identify the AAPA (prior art), Applicant will discuss below those background references which the Examiner appears to rely upon in conjunction with the newly cited art of Brodsky et al., Burgess and Campbell et al.

EP-A-0 354 362 discloses a method for fabricating code markings shaped as linear recesses 14 in the surface of glass or plastic bottles 10 by means of a laser 12. The bottles are fixed in a conveying means comprising a carousel. A mask is arranged in the laser beam path for the purpose of aligning the laser in such a way that each resulting linear recess 14 acts as a diffuse scattering reflector.

The reference does not disclose a deflection means for two-dimensional movement of the laser beam according to independent claims 1,16, 29 and 33 of the patent application, since the one-dimensional recesses 14 are created by axial rotation of the bottle 10 in a fixed position of the laser beam. Furthermore, a YAG-laser or a gas laser is proposed with an operating wavelength well above 1000 n, i.e. obviously not below 380 nm. Also no comparison of the read code marking with a stored marking pattern is suggested, which allows for individual checking of each different code marking. Finally, no detection means of the bottle position or the position or speed of a conveying means is disclosed.

As noted previously, WO 92/15963 discloses a coding process and a coding device, wherein plastic bottles 2 are fixed on a conveying apparatus and a code marking is applied on the bottles 2 by a laser beam. This is achieved by directing the laser beam of a coding station 3 along the bottle axis or at a slight inclination angle to

this onto a bottle surface having a horizontal component. The applied code marking is then checked by a inspection means 5, which comprises a CCD camera 6.

WO 92/115963 does not disclose glass containers, but only refers to plastic bottles. The laser is moved horizontally along an upper or lower surface of the fixed bottle and may be deflected also vertically. No code marking consisting of a plurality of pixels or data points is suggested. Moreover, a gas laser or a YAG laser is used with a wavelength well above 1000 nm. No comparison of the fabricated code marking with a stored marking pattern is suggested, therefore no checking of individual code markings is possible. Furthermore, no position detection means are disclosed.

DE-A-100 50263 relates to the labeling of optical elements of a silicate or plastic material, such as eyeglass lenses, by application of UV-light on the lenses. For example, the UV light can be generated by a excimer laser at a wavelength of 193 nm. The fabricated labels consist of order numbers to be read by a person. This reference does not relate to the application of individual code markings on glass receptacles. No conveying means, detecting means and comparing means are disclosed.

As noted above, US 2001/0009707 relates to a method of texturing an annular section of a smooth-surfaced, glass-ceramic memory disk substrate, and more generally to glass, glass-ceramic and ceramic surfaces. By application of UV radiation from about 193 nm to about 351 nm a cavity or depressed area is formed. Thereby, the effect is exploited that the laser radiation is substantially absorbed by the material at that particular wavelength.

This reference does not relate to a code marking application, but to producing a

roughened or textured surface on the material. Also, no conveying means, detecting means and comparing means are disclosed.

Brodsky et al. discloses a laser marking system for plastic or other materials, such as glass, by application of a high power fiber laser operating at around 900 nm or above. The laser beam 22 is deflected and steered in two dimensions by a pair of galvanometer mirrors and controlled by a computer 24 providing coordinate information. Also, feedback means for maintaining the optical output intensity are suggested. Transport of a series of articles may be achieved by means of a conveyor system 63.

Brodsky et al. does not disclose code marking deposition on glass receptacles. No detection means of the article or conveying means position is disclosed. No reading and no comparison of the deposited code marking with a stored marking pattern is proposed.

Burgess relates to a laser drilling system and a method of forming blind vias in circuit boards and polymer based multichip modules. The blind vias are drilled by means of an industrial CO_2 laser which has an output power of at least 100 W and an operation wavelength of about 10.06 pm. Registration and angular alignment is achieved by moving the panel over or under an X/Y table under CCD alignment cameras. If the buried pin 47 is outside a tolerable range, the panel is rejected and removed from the system.

Burgess does not relate to glass receptacles nor to code markings. In particular, the usage of the proposed industrial gas laser is not suited for steering of its laser beam and for application of code markings. Furthermore, no comparing means with stored

marking patterns is disclosed. Therefore no checking of individual code markings and no rejection of the respective article based thereon can be achieved.

Campbell Jr. et al. describes a web cutting system for furniture generally covered with leather, vinyl, and fabric. According to this document, nested templates in a stored template pattern are displayed on a computer display superimposed upon an image of a section of the actual fabric. The image of the fabric is captured by means of a movable camera. Thereby, a new template pattern for the respective section is produced which is then converted into cutting instructions for a cutting station. The cutting system may comprise a laser beam for cutting the fabric and means for controlling the laser beam. Transport of the fabric is achieved by a conveying means which may be moved simultaneously to the laser beam.

Campbell Jr. et al. does not relate to glass material nor to code markings. No further checking or imaging or comparison of the fabric after cutting of the fabric is proposed.

Accordingly, independent claims 1, 16, 29 and 33 are believed to patentably define over the art of record.

With respect to the Examiner's rejection of claims 14 and 24, Applicants note that JP 2001 1062579A relates to a method for processing of a workpiece by means of laser irradiation. Thereby, a jig with a position mark is applied on the workpiece. A controller comprising a CCD camera detects marks on the jig until a processing position is obtained. The Japanese reference does not relate to glass material nor to code markings. No steering means for the laser beam, conveying means and comparing

means of the workpiece with stored information is disclosed.

Accordingly, claims 14 and 24 are also believed to patentably define over the cited art.

Therefore, in view of the above amendments and remarks, it is respectfully requested that the application be reconsidered and that all of claims 1-31, 33 and 34, now standing in the application, be allowed and that the case be passed to issue. If there are any other issues remaining which the Examiner believes could be resolved through either a supplemental response or an Examiner's amendment, the Examiner is respectfully requested to contact the undersigned at the local telephone exchange indicated below.

Respectfully submitted,

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